## LOOP CIRCUITRY WITH LOW-PASS NOISE FILTER

## Abstract of the Disclosure

- 5 [0058] Phase comparators for use in loop circuits (i.e., DLL circuits and PLL circuits) are provided. The phase comparators include a phase detector for comparing a reference clock signal and a feedback signal derived from the loop circuit generated internal clock signal.
- The phase comparators also include a low-pass noise filter for filtering out erroneously detected phase differences between the reference clock signal and the feedback signal by requiring a certain net number of leading or lagging detections before the compensation
- line in a DLL circuit or the controlled oscillator in a PLL circuit) is adjusted. The number of net measurements required before these adjustments take place depends on a programmable bandwidth signal provided to the phase
- 20 comparator.